

# A NEW SUBSPECIES OF *GENTIANELLA* *HETEROSEPALA* (GENTIANACEAE) FROM MEXICO

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## ABSTRACT

Collections from northwestern Durango have uncovered the presence of *Gentianella heterosepala* (Engelm.) Holub in Mexico. The species is previously known from the southwestern United States. The Mexican population, described here as subspecies *durangensis*, produces foliaceous calyx lobes joined to the tube and a calyx tube with glandular trichomes between the lobes, corolla fimbriae inserted at the base of the lobes and ovate-auriculate leaves. A morphological description and an illustration are presented.

## RESUMEN

Colectas provenientes del noroeste de Durango ponen de manifiesto la presencia de *Gentianella heterosepala* (Engelm.) Holub en México. La especie se conocida previamente del sudoeste de los Estados Unidos. La población mexicana, descrita aquí como subespecie *durangensis*, muestra los lóbulos foliáceos del cáliz unidos al tubo, el tubo del cáliz con tricomas glandulares entre los lóbulos, fimbrias de la corola insertas en la base de los lóbulos y hojas ovado-auriculadas. Se presenta una descripción morfológica y una ilustración de la subespecie.

KEY WORDS: *Gentianella*, Gentianaceae, Durango, México.

The genus *Gentianella* was revised for North America by Gillett in 1957, and recently, Nesom (1991) reported twelve species for México. Specimens of *Gentianella heterosepala* collected from Durango correspond to a new subspecies, increasing the number of taxa represented in México to thirteen.

*Gentianella heterosepala* was first proposed by Engelmann within the genus *Gentiana* in 1862 based on material from the southwestern United States. Greene (1904) considered it to be a member of the genus *Amarella*; Gillett (1957) later recognized it as a subspecies of *Gentianella amarella*, and more recently Holub (1967) raised it to specific rank. Holmgren (1984) recognized *G. amarella* and *G. heterosepala* as distinct.

***Gentianella heterosepala* (Engelm.) Holub ssp. *durangensis* Villarreal, ssp. nov. (Fig. 1)**

*Gentianellae heterosepala* (Engelm.) Holub. ssp. *heterosepala* similis sed differt lobis calycis foliaceous unitus ad tubo, inter lobos pili-glanduloso, corollarum fimbriis insertis ad basim lobis, et foliis ovatis valde cordati-auriculatis.

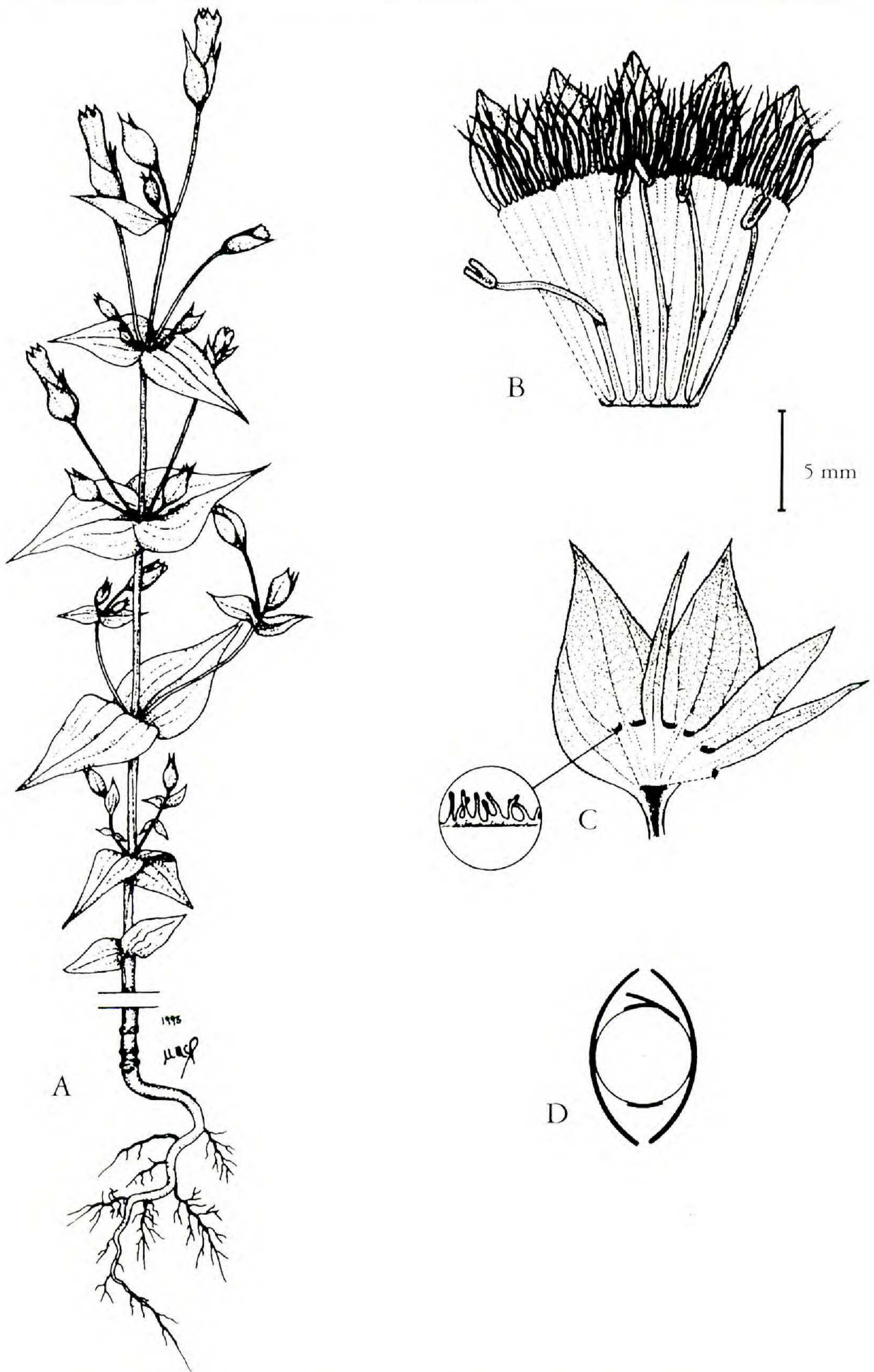


FIG. 1. *Gentianella heterosepala* ssp. *durangensis* A. Habit. B. Corolla. C. Calyx with detail of the tube margin. D. Diagram showing the disposition of the sepals.

Plants annual. Stems erect to decumbent at the base, 30–60 cm tall, glabrous, terete to slightly angled, purplish. Leaves opposite, sessile, subclasping, not basally connate, spreading, 5-nerved, glabrous, ovate, 3–5 cm long, 2–2.5 cm wide proximally, base auriculate, apex acuminate, margin minutely denticulate. Flowers mostly 1–4 in cymes, on narrowly winged pedicels 2–6 cm long, glabrous, terminal on the primary branches and axillary branches arising mostly on the upper 1/3 of the stem; calyx of five sepals, two of them foliaceous, opposite, covering the remaining calyx, ovate, 10–15 mm long, 6–10 mm wide, base cuneate, apex acuminate, trinervate, green, the middle portion joined to the tube, the tube campanulate, 3–5 mm long with glandular trichomes between the lobes, the three lobes lanceolate, 8–10 mm long, 1.5–2 mm wide, one of them 3–5 mm wide, acuminate, trinervate, green at the tips; corolla yellowish with some blue in the lobes, funnellform, the tube 10–12 mm long, with a ring of filaments at the mouth, the lobes ovate, 5–6 mm long; stamens five, the filaments flattened, adnate to the base of the corolla, the anthers dorsifixed, 1.5 mm long, separated at the upper portion. Ovary narrowly elliptic, 1 cm long, stigmas 2; fruit narrowly elliptic, 2–2.5 cm long, 5–6 mm wide.

TYPE. MEXICO. DURANGO: Mpio. Canelas, 28.5 km al sueste de Canelas, por el camino a Durango, bosque de pino, 2650 m, 6 Oct 1985, *Socorro González 3446*, y *M. González* (HOLOTYPE: MEXU; ISOTYPES: ANSM, CIIDIR).

Additional specimens examined: Durango: Mpio. Canelas, 19 km de Canelas, por el camino a Durango, bajío inundable en bosque de pino, 2560 m, 5 Oct 1985, *Socorro González 3391*, *M. González* y *Y. Herrera* (ANSM, CIIDIR). Mpio. Canelas, predio particular Cebollitas, bosque mixto de *Pinus*, *Quercus*, *Pseudotsuga*, *Picea* y *Abies* con presencia de *Pinus durangensis*, *P. ayacahuite*, *P. arizonica*, *P. cooperi*, *Abies durangensis*, *Arbutus xalapensis*, *Juniperus deppeana* y *Cupressus benthamii*, hierba erguida de unos 30 cm alto, flor violeta, abundante, suelo soméro pedregoso oscuro con afloramientos rocosos, pendiente 100%, exposición norte, 2600 m, 25 Sep 1990, *Oscar Bravo Bolaños 1562* (ANSM, CHAP).

*Gentianella heterosepala* is a member of the section *Amarella* (Gillett 1957) and is distinguished by a calyx with two bracteate foliaceous sepals that enclose the remaining calyx and portion of the corolla. The inner calyx lobes are usually of different length. The pedicels are 2–7.5 cm long, and the corollas 15–20 mm long. *Gentianella amarella* (L.) Borner ssp. *acuta* (Michx.) Gillett which grows in the same area, has a calyx tube with lobes equal or unequal in width (but not foliaceous, as shown in Figure 1 c–d), shorter pedicels and smaller flowers. The hybridization between the two species is not considered. *Gentianella heterosepala* occurs primarily in the southwestern United States (Utah, Colorado, Idaho, Arizona, and New Mexico), where it grows in meadows, streambanks and open aspen-pine forest at 2000–3400 m (Holmgren 1984).

*Gentianella heterosepala* ssp. *durangensis* is known in Mexico from the municipio of Canelas in the Sierra Madre Occidental of northwest of

Durango, where it is localized in pine woodlands at 2600–2700 m altitude and disjunct from the southernmost population in the United States by about 600 kilometers. Plants of the Mexican populations are characterized by a calyx tube 3–5 mm long with three lanceolate lobes, and two foliaceous lobes joined on the outside, glandular trichomes on the tube between the calyx lobes, corolla fimbriae inserted at the base of the lobes, and ovate-auriculate leaves (Fig. 1). The United States populations (*G.b.* ssp. *heterosepala*) have a short calyx tube (1–2 mm long) with the foliaceous sepals free to the base, and when present, a rim of glandular trichomes at the middle of the calyx tube. The corolla fimbriae are united in a scale at the base of each lobe, the leaves are usually elliptic-oblong, narrow at the base, and occasionally ovate.

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